

WHAT IS CLAIMED IS:

1. A method of parametric design of an instrument panel support structure for an instrument panel in a vehicle comprising:

5 determining an input parameter, wherein the input parameter is a three dimensional coordinate defining the instrument panel support structure relative to the vehicle;

generating a design of the instrument panel support structure using the input parameter;

determining if the design of the instrument panel support structure meets a predetermined criteria; and

15 modifying the input parameter if the design of the instrument panel support structure does not meet the predetermined criteria.

2. A method as set forth in claim 1 wherein the input parameter is a three dimensional coordinate for an attachment location of the instrument panel support structure relative to the vehicle.

3. A method as set forth in claim 1 wherein the input parameter is a three dimensional coordinate for positioning a cross car support beam

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portion of the instrument panel support structure relative to the vehicle.

4. A method as set forth in claim 1
5 wherein the input parameter is a three dimensional coordinate for positioning a knee bolster portion of the instrument panel support structure relative to the vehicle.

10 5. A method as set forth in claim 1 including the step of using a computer-aided engineering analytical technique to determine whether the design of the instrument panel support structure meets a predetermined criteria.

15 6. A method as set forth in claim 1 including the step of using a computer-aided human factors analytical technique to determine whether the design of the instrument panel support structure
20 meets a predetermined criteria.

7. A method of parametric design of an
~~instrument panel support structure for a vehicle~~
comprising:

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selecting a vehicle body structure for the vehicle from a library stored in a memory of a computer system;

orienting an occupant within the vehicle
5 body;

locating a steering column relative to the vehicle body;

determining an input parameter, wherein the input parameter is a three dimensional coordinate
10 defining the instrument panel support structure relative to the vehicle body;

generating a parametric design of the instrument panel support structure using the orientation of the occupant, the location of the
15 steering wheel, and the input parameter;

comparing the parametric design of the instrument panel support structure to a predetermined criteria;

varying an input parameter to meet the
20 predetermined criteria; and

regenerating the parametric design of the instrument panel support structure.

8. A method as set forth in claim 7
25 wherein said step of selecting an input parameter includes selecting an attachment location for

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attaching an upper attachment bracket portion of the instrument panel support structure relative to the vehicle.

5 9. A method as set forth in claim 7 wherein said step of selecting an input parameter includes selecting an attachment location for securing a center support bracket portion of the instrument panel support structure relative to the
10 vehicle.

 10. A method as set forth in claim 7 wherein said step of selecting an input parameter includes selecting an attachment location for
15 securing an outer portion of the instrument panel support structure relative to the vehicle.

 11. A method as set forth in claim 7 wherein said step of selecting an input parameter
20 includes defining a centerline location for a center portion of the instrument panel support structure relative to the vehicle.

 12. A method as set forth in claim 7
25 wherein said step of selecting an input parameter includes defining a centerline location for a driver

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side portion of the instrument panel support structure relative to the vehicle.

13. A method as set forth in claim 7
5 wherein said step of selecting an input parameter includes defining a centerline location for a passenger side portion of the instrument panel support structure relative to the vehicle.

10 14. A method as set forth in claim 7 including the step of using a computer-aided engineering analytical technique to determine whether the design of the instrument panel support structure meets a predetermined criteria.

15 15. A method as set forth in claim 7 including the step of using a computer-aided human factors analytical technique to determine whether the design of the instrument panel support structure
20 meets a predetermined criteria.

16. A method of parametric design of an instrument panel support structure for an instrument panel in a vehicle comprising:

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selecting a vehicle body style for the vehicle from a vehicle library stored in a memory of a computer system;

orienting an occupant within the vehicle
5 body;

orienting a steering column within the vehicle body;

selecting a parameter for locating an instrument panel support structure within the vehicle
10 body;

selecting a parameter for attaching the instrument panel support structure within the vehicle body;

selecting a predetermined condition for the
15 instrument panel support structure within the vehicle body;

generating a parametric design of an instrument panel support structure using the locating parameter, the attaching parameter and the
20 predetermined condition;

packaging an instrument panel component within the parametric design of the instrument panel support structure;

determining if the parametric design of the
25 instrument panel support structure meets a predetermined criteria;

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determining if the parametric design of the instrument panel support structure should be changed if the predetermined criteria is not met;

5 determining if a parameter should be changed if the parametric design of the instrument panel support structure should be changed; and

modifying the parameter if the parameter should be changed.

10 17. A method as set forth in claim 16 including the step of using a computer-aided engineering analytical technique to determine whether the design of the instrument panel support structure meets a predetermined criteria.

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18. A method as set forth in claim 16 including the step of using a computer-aided human factors analytical technique to determine whether the design of the instrument panel support structure
20 meets a predetermined criteria.

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